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PATENT  
Docket No. H 4051 PCT/US

Re  
H 5/1  
9-3-02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RE: PCT/EP00/06291  
International Filing Date: July 5, 2000  
Priority Date Claimed: July 14, 1999  
Applicant: Spei et al.  
Title: METHOD FOR TREATING CIRCULATING WATER IN PAINT  
BOOTHS

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Box PCT  
Washington, DC 20231

ATTN: DO/EO/US

Sir:  
Prior to substantive examination of the above-referenced application, please  
enter the following Preliminary Amendment.

**IN THE SPECIFICATION:**

Page 1, after the title, insert: This application claims priority from German  
Application 19932766.1, filed July 14, 1999, and International Application  
PCT/EP00/06291 (published in a language other than English), filed July 5, 2000.--

Enter page 14 of the specification enclosed herewith as the Abstract of the  
Disclosure.

**IN THE CLAIMS:**

Cancel claims 1-14 without prejudice.

Enter the following new claims 15-42:

15. (New) A process for treating circulating water in a painting booth wherein the  
circulating water is comprised of paint particles, said process comprising adding to the  
circulating water at least one dispersant selected from the group consisting of:

a) nonionic surfactants which are alkoxylates of fatty acids and fatty amines;  
and  
b) anionic surfactants;

in a total dispersant concentration of 0.01 to 2.0% by weight, based on circulating water,  
subject to the proviso that when an anionic surfactant is present no polyaspartic acid

is added to the circulating water.

16. (New) The process of claim 15 wherein at least one dispersant selected from the group consisting of nonionic surfactants which are alkoxylates of fatty acids and fatty amines, said fatty acids and fatty amines containing fatty alkyl groups of 7 to 36 carbon atoms, is added to the circulating water.

17. (New) The process of claim 15 wherein at least one dispersant selected from the group consisting of nonionic surfactants which are alkoxylates of fatty acids and fatty amines, said alkoxylates containing 5 to 100 alkylene oxide units, is added to the circulating water.

18. (New) The process of claim 15 wherein at least one dispersant which is an anionic surfactant selected from the group consisting of soaps, alkyl sulfates, alkyl sulfonates, alkyl benzene sulfonates, alkyl ether sulfates containing alkyl groups having 7 to 44 carbon atoms in said alkyl groups, and sulfonated maleic acid esters is added to the circulating water.

19. (New) The process of claim 15 comprising an additional step of removing the paint particles from the circulating water by membrane filtration.

20. (New) A process for treating circulating water in a painting booth wherein the circulating water is comprised of paint particles, said process comprising adding to the circulating water i) at least one dispersant selected from the group consisting of:

- a) homopolymers and copolymers prepared by polymerization of at least one polymerizable monomer selected from acrylic acid or methacrylic acid, said homopolymers and copolymers having molecular weights of from 2,500 to 500,000;
- b) nonionic surfactants;
- c) inorganic complexing agents; and
- d) nonpolymeric organic complexing agents;

and ii) 0.2 to 2% by weight, based on circulating water, of polyaspartic acid.

21. (New) The process of claim 20 comprising an additional step of removing the paint particles from the circulating water by membrane filtration.

22. (New) The process of claim 20 wherein at least one dispersant selected from the group consisting of homopolymers and copolymers prepared by polymerization of at

least one polymerizable monomer selected from acrylic acid or methacrylic acid, said homopolymers and copolymers having molecular weights of from 15,000 to 250,000, is added to the circulating water.

23. (New) A process for treating circulating water in a painting booth wherein the circulating water is comprised of paint particles and has a hardness of at least 2° German hardness, said process comprising adding to the circulating water at least one dispersant in a total dispersant concentration of 0.01 to 2.0% by weight, based on circulating water, so as to achieve a mean particle size for the paint particles of less than 20  $\mu\text{m}$ , as determined by laser diffraction.

24. (New) The process of claim 23 wherein at least one dispersant is selected from the group consisting of:

- a) homopolymers and copolymers prepared by polymerization of at least one polymerizable monomer selected from acrylic acid or methacrylic acid, said homopolymers and copolymers having molecular weights of from 2,500 to 500,000;
- b) nonionic surfactants;
- c) inorganic complexing agents; and
- d) nonpolymeric organic complexing agents.

25. (New) The process of claim 23 wherein at least one dispersant is a nonionic surfactant selected from the group consisting of alkoxylates of fatty acids, alkoxylates of fatty alcohols and alkoxylates of fatty amines, wherein the nonionic surfactant contains a fatty alkyl group having 7 to 36 carbon atoms and 5 to 100 alkylene oxide units.

26. (New) The process of claim 23 wherein at least one dispersant is an inorganic complexing agent selected from the group consisting of oligomeric and polymeric inorganic phosphates.

27. (New) The process of claim 23 wherein at least one dispersant is a nonpolymeric organic complexing agent selected from the group consisting of organic carboxylic acids containing two to ten hetero atoms capable of co-ordination to metal ions and organic phosphonic acids.

28. (New) The process of claim 23 wherein at least one dispersant is selected from

the group consisting of citric acid, tartaric acid, malic acid, gluconic acid, nitriloacetic acid, ethylenediamine tetraacetic acid, methylglycine diacetic acid, 1-hydroxyethane-1, 1-diphosphonic acid, aminotrimethylene phosphonic acid, phosphonobutane tricarboxylic acid, Na triphosphate, Na pyrophosphate and Na hexametaphosphate.

29. (New) The process of claim 23 wherein 0.2 to 2% by weight, based on the circulating water, of polyaspartic acid is additionally added to the circulating water.

30. (New) The process of claim 23 wherein at least one dispersant is an anionic surfactant and no polyaspartic acid is added to the circulating water.

31. (New) The process of claim 30 wherein the anionic surfactant is selected from the group consisting of soaps, alkyl sulfates, alkyl sulfonates, alkyl benzene sulfonates, alkyl ether sulfates containing alkyl groups having 7 to 44 carbon atoms, and sulfonated maleic acid esters.

32. (New) The process of claim 23 comprising an additional step of removing the paint particles from the circulating water by membrane filtration.

33. (New) A composition comprised of

- a) water;
- b) dispersed paint particles;
- c) polyaspartic acid in acid form, in salt form or in both acid and salt form;
- d) an alkoxylate of a fatty amine; and
- e) an organic phosphonic acid in acid form, in salt form or in both acid and salt form.

34. (New) The composition of claim 33 additionally comprising an alkali metal hydroxide.

35. (New) The composition of claim 33 wherein the organic phosphonic acid is selected from the group consisting of 1-hydroxyethane-1, 1-diphosphonic acid, aminotrimethylene phosphonic acid, and phosphonobutane tricarboxylic acid.

36. (New) The composition of claim 33 wherein said fatty amine is a coconut amine.

37. (New) The composition of claim 33 wherein said alkoxylate of said fatty amine contains ethylene oxide units.

38. (New) The composition of claim 33 wherein d) and e) are present in a concentration totaling from 0.01 to 2.0% by weight.

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PCT/EP00/06291 filed July 5, 2000

39. (New) The composition of claim 33, wherein the polyaspartic acid is present at a concentration of 0.2 to 2% by weight.

40. (New) The composition of claim 33 wherein said dispersed paint particles have an average particle size of less than 20  $\mu\text{m}$ .

41. (New) The composition of claim 33 wherein said composition has a weakly alkaline pH.

42. (New) The composition of claim 33 wherein said composition has a pH of from about 8 to about 10.

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Respectfully submitted,

  
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